

**Notice of Allowability**

Application No.

10/012,470

Applicant(s)

ARAKI ET AL.

Examiner

Art Unit

Negussie Worku

2626

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/2001.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 07/02 and 4/02
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_

*N. Smith*  
9/16/01

*KA Williams*  
KIMBERLY WILLIAMS  
SUPERVISORY PATENT EXAMINER

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No.10/012470, filed on December 12, 2001.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on March 7, 2002 and April 4, 2002. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

### ***Reasons for Allowance***

With respect to claims 1-8, the prior art searched and of record neither anticipates nor suggests a circumscribed rectangle extraction unit which extracts a circumscribed rectangle for each character in a distorted image scanned by an image reading unit to read an original placed on a reference plane; a character string extraction unit which extracts character strings using

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said circumscribed rectangles extracted by said circumscribed rectangle extraction unit; a distance estimation unit which estimates a distance between said reference plane and said original using said character strings; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit.

With respect to claims 9-12, the prior art searched and of record neither anticipates nor suggests a ruled line extraction unit which extracts a ruled lines in a distorted image scanned by an image reading unit to read an original placed on a reference plane; a distance estimation unit which estimates a distance between said reference plane and said original using said ruled lines; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit.

With respect to claims 13-20, the prior art searched and of record neither anticipates nor suggests computer readable recording media having a program to execute an image distortion correction method, said program comprising

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steps of: a circumscribed rectangle extraction step for extracting a circumscribed rectangle for each character in a distorted image scanned by an image reading step to read an original placed on a reference plane; a character string extraction step for extracting character strings using said circumscribed rectangles extracted by said circumscribed rectangle extraction step; a distance estimation step for estimating a distance between said reference plane and said original using said character strings; and an image distortion correction step for correcting said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction step.

With respect to claims 21-24, the prior art searched and of record neither anticipates nor suggests a computer readable recording media having a program to execute an image distortion correction method, said program comprising steps of: a ruled line extraction step for extracting ruled lines in a distorted image scanned by an image reading step to read an original placed on a reference plane; a distance estimation step for estimating a distance between said reference plane and said original using said ruled lines; and an image distortion correction step for correcting said distorted image based on said

distance between said reference plane and said original estimated by said image distortion correction step.

With respect to claim 25, the prior art searched and of record neither anticipates nor suggests an image distortion correction method comprising steps of: a circumscribed rectangle extraction step for extracting a circumscribed rectangle for each character in a distorted image scanned by an image reading step to read an original placed on a reference plane; a character string extraction step for extracting character strings using said circumscribed rectangles extracted by said circumscribed rectangle extraction step; a distance estimation step for estimating a distance between said reference plane and said original using said character strings; and an image distortion correction step for correcting said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction step.

With respect to claim 26, the prior art searched and of record neither anticipates nor suggests With respect to claim 6, the prior art searched and of record neither anticipates nor suggests an image distortion correction method comprising steps of: a ruled line extraction step for extracting ruled lines in a

distorted image scanned by an image reading unit to read an original placed on a reference plane; a distance estimation step for estimating a distance between said reference plane and said original using said ruled lines; and an image distortion correction step for correcting said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction step.

With respect to claim 27, the prior art searched and of record neither anticipates nor suggests an image scanner comprising: an image reading unit to read an original placed on a reference plane; and an image distortion correction apparatus comprising; a circumscribed rectangle extraction unit which extracts a circumscribed rectangle for each character in a distorted image scanned by said image reading unit; a character string extraction unit which extracts character strings using said circumscribed rectangles extracted by said circumscribed rectangle extraction unit; a distance estimation unit which estimates a distance between said reference plane and said original using said character strings; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit.

With respect to claim 28, the prior art searched and of record neither anticipates nor suggests an image scanner comprising: an image reading unit to read an original placed on a reference plane; and an image distortion correction apparatus comprising; a ruled line extraction unit which extracts ruled lines in a distorted image scanned by said image reading unit; a distance estimation unit which estimates a distance between said reference plane and said original using said ruled lines; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit.

With respect to claim 29, the prior art searched and of record neither anticipates nor suggests an image forming apparatus comprising: an image reading unit to read an original placed on a reference plane; an image distortion correction apparatus comprising; a circumscribed rectangle extraction unit which extracts a circumscribed rectangle for each character in a distorted image scanned by said image reading unit; a character string extraction unit which extracts character strings using said circumscribed rectangles extracted by said circumscribed rectangle extraction unit; a distance estimation unit which estimates a distance between said reference plane and said original using said

character strings; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit; and, a printing unit which prints said corrected image supplied from said image distortion correction apparatus on a paper.

With respect to claim 30, the prior art searched and of record neither anticipates nor suggests an image reading unit to read an original placed on a reference plane; an image distortion correction apparatus comprising; a ruled line extraction unit which extracts ruled lines in a distorted image scanned by said image reading unit; a distance estimation unit which estimates a distance between said reference plane and said original using said ruled lines; and an image distortion correction unit which corrects said distorted image based on said distance between said reference plane and said original estimated by said image distortion correction unit; and a printing unit which prints said corrected image supplied from said image distortion correction apparatus on a paper

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Negussie Worku whose telephone



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number is 571-272-7472. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on 571-272-7471. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Negussie Worku

09/19/05

  
KIMBERLY WILLIAMS  
SUPERVISORY PATENT EXAMINER